limiting the present disclosure. The present teaching can be readily applied to other types of apparatuses. Also, the description of exemplary embodiments is intended to be illustrative, and not to limit the scope of the claims, and many alternatives, modifications, and variations will be apparent to those skilled in the art.

What is claimed is:

1. A three-dimensional (3D) display apparatus comprising:

a display comprising a display panel and a viewing area separator disposed at a front side of the display panel and configured to provide a plurality of optical views having different viewpoints to a viewing zone; and

a processor configured to render a plurality of image views having different viewpoints based on a depth of an input image and provide a multiview image by arranging the plurality of image views on the display panel in an arrangement pattern,

wherein the processor is further configured to determine, based on the arrangement pattern, an estimated crosstalk occurring between the plurality of image views having the different viewpoints, correct the plurality of image views by performing crosstalk inverse compensation according to the estimated crosstalk, and provide the multiview image based on the crosstalk inverse compensation.

2. The 3D display apparatus as claimed in claim **1**, wherein a number of the plurality of image views is greater than a number of the plurality of optical views, and

each of the plurality of optical views is provided based on at least two image views of the plurality of image views having different viewpoints.

3. The 3D display apparatus as claimed in claim **1**, wherein the processor is further configured to determine the estimated crosstalk based on a difference between an output pixel region of the display panel and a corresponding visible pixel region provided through the image views.

4. The 3D display apparatus as claimed in claim **3**, wherein a plurality of visible pixel regions tilted at a preset angle corresponding to the plurality of optical views, the plurality of visible pixel regions being separated by the viewing area separator, and

the processor is further configured to perform theoretical crosstalk modeling on a reference image view based on the preset angle, the number of image views, and a rendering pitch.

5. The 3D display apparatus as claimed in claim **4**, wherein the processor is further configured to perform the theoretical crosstalk modeling on the reference image view based on the preset angle, the number of image views, the rendering pitch, and reflecting a Gaussian optical profile to the modeled theoretical crosstalk.

6. The 3D display apparatus as claimed in claim **4**, wherein the processor is further configured to determine a crosstalk occurrence weight for at least one image view of the plurality of image views which provides the crosstalk to the reference image view based on the preset angle, the number of image views, and the rendering pitch, and perform the crosstalk inverse compensation by generating a crosstalk matrix according to the crosstalk occurrence weight.

7. The 3D display apparatus as claimed in claim **6**, wherein the processor is further configured to generate an epipolar image by combining a plurality of pixel lines of the plurality of rendered image views, and perform the crosstalk inverse compensation by applying a crosstalk inverse filter to the generated epipolar image, and

the crosstalk inverse filter generates an inverse matrix of the crosstalk matrix.

8. The 3D display apparatus as claimed in claim **7**, wherein the processor is further configured to adjust a filtering coefficient of the crosstalk inverse filter based on a characteristic of the input image and perform the crosstalk inverse compensation by reflecting the adjusted filtering coefficient.

9. The 3D display apparatus as claimed in claim **8**, wherein the processor is further configured to divide the crosstalk inverse filter into an angular smoothing filter and an angular sharpening filter, and adjust the filtering coefficient of the crosstalk inverse filter by adjusting coefficients of the angular smoothing filter and the angular sharpening filter based on the characteristic of the input image.

10. The 3D display apparatus as claimed in claim **7**, wherein the processor is further configured to acquire a plurality of target image views in which the plurality of rendered image views are corrected based on the epipolar image which is subject to the crosstalk inverse compensation, and arrange the plurality of image views on the display panel in the arrangement pattern based on the plurality of target image views to provide the multiview image.

11. A method of controlling a three-dimensional (3D) display apparatus including a display panel and a viewing area separator disposed on a front side of the display panel and configured to provide a plurality of optical views having different viewpoints to a viewing zone, the method comprising:

rendering a plurality of image views having different viewpoints based on a depth of an input image; and

providing a multiview image by arranging the plurality of image views on the display panel in an arrangement pattern,

wherein the providing the multiview image comprises determining, based on the arrangement pattern, an estimated crosstalk occurring between the plurality of image views having the different viewpoints, correcting the plurality of view images by performing crosstalk inverse compensation according to the estimated crosstalk, and providing the multiview image based on the crosstalk inverse compensation.

12. The method as claimed in claim **11**, wherein a number of the plurality of image views is greater than a number of the plurality of optical views, and

each of the plurality of optical views is provided based on at least two image views of the plurality of image views having different viewpoints.

13. The method as claimed in claim **11**, wherein the providing the multiview image comprises determining the estimated crosstalk based on a difference between an output pixel region of the display panel and a corresponding visible pixel region provided to the user through the image views.

14. The method as claimed in claim **13**, wherein a plurality of visible pixel regions tilted at a preset angle corresponding to the plurality of optical views, the plurality of visible pixel regions being separated by the viewing area separator, and

the providing of the multiview image comprises performing theoretical crosstalk modeling on a reference image